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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/217,633	12/22/1998	MASAHARU NAKAMORI	0505-047P	4151

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EXAMINER

TRAN, HIEN THI

ART UNIT PAPER NUMBER

1764

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/217,633

Applicant(s)

NAKAMORI ET AL.

Examiner

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/8/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-8,13-15,18-20,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6-8, 13-15, 18-20, 23-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 6-8, 13-15, 18-20, 23-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, in claim 1, lines 4-14, the description of the details of the honeycomb structure is nowhere disclosed in the original specification.

For example, it is unclear as to what is intended by “substantially equal in size” or “substantially constant” as the size of the air vents 4 appears to get smaller toward the case 6 and therefore the wave height appears to get smaller toward the case. It is unclear as to what intended by “outwardly” or “inwardly” as the orientation is dependent on the portion of the wave plate, the crest or the valley of the corrugation. With respect to the phrase of “uninterrupted planar surfaces”, since applicants are relying on the drawings only in describing the structure of the carrier, it is unclear from the drawings to determine if the plates form uninterrupted planar surfaces. It should be noted that any negative limitation or exclusionary proviso must have basis in the original disclosure. The mere absence of a positive recitation is not a basis for an exclusion. See the remaining claims 8, 15, 20 likewise.

Claim Objections

3. Claim 20 is objected to because of the following informalities: "1.20wt%" should be changed to --1.20 wt%-- .

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 6-8, 13-15, 18-20, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whittenberger et al (5,651,906) in view of Kohno et al (5,653,825), Arai et al (5,151,254), either Bullock et al (4,810,588) or Hitachi et al (5,177,960) and either Toyoda et al (5,336,472) or Maus (4,713,361).

Whittenberger et al disclose a catalytic converter comprising:

a honeycomb structure shaped in a cylindrical form, said honeycomb structure having a plurality of channels (i.e. air vents) extending in an axial direction thereof; and

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a cylindrical case covering an outer peripheral surface of the honeycomb structure wherein the case is composed of stainless steel.

The apparatus of Whittenberger et al is substantially the same as that of the instant claims, but fails to disclose whether the stainless steel case may be ferritic stainless steel case containing Mo.

However, Kohno et al disclose the conventionality of using ferritic stainless steel containing Mo of less than or equal to 2% for constructing converter housing due to its excellency in stress corrosion cracking resistance.

It would have been obvious to one having ordinary skill in the art to use the ferritic stainless steel containing Mo as taught by Kohno et al as an alternate material for the converter housing in the apparatus of Whittenberger et al for an improved stress corrosion cracking resistance and since use of such is conventional and no cause for patentability here.

Since Kohno et al discloses the stainless steel containing Mo of less than or equal 2%, such range overlaps the range of 0.3 to 2% recited in the instant claim.

Selecting the Mo range from 2-2.5% is within the purview of one having ordinary skill in the art during routine experimentation and optimization of the system.

Since the modified apparatus of Whittenberger discloses stainless steel for both casing and honeycomb structure, both casing and honeycomb structure inherently have the same coefficient of linear expansions as that of the instant claims.

With respect to the “substantially equal in size” of the air vents and the “constant wave height”, Toyoda et al (Fig. 1B) recognizes the conventionality of providing a honeycomb

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structure having air vents of equal size. Similar, Maus discloses provision of a honeycomb structure having air vents of equal size.

It would have been obvious to one having ordinary skill in the art to alternately construct the honeycomb structure of Whittenberger et al with air vents of equal size as recognized by Toyoda et al or Maus, since such is conventional in the art which is no cause for patentability here and since such a modification would have involved a mere change in the shape and size of the air vents. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). A change in size is generally recognized as being within the level of ordinary skill in the art.

With respect to outermost air vent, Toyoda et al and Maus disclose the conventionality of providing the catalytic honeycomb carrier in which the outermost air vents of the catalytic carrier are formed by cooperation of an entire surface of the case and a waved plate of the honeycomb carrier (note the Figure in Maus and col. 5, line 19-23 in Toyoda et al).

It would have been obvious matter of design choice to alternately locate the waved plate at the outermost surface since such a modification would have involved a mere substitution of known equivalent structures as evidenced by Toyoda et al and Maus. A substitution of known equivalent structures is generally recognized as being within the level of ordinary skill in the art.

In re Fout 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

With respect to the limitation of a catalyst layer formed on an inner surface of the case, Arai et al discloses provision of coating a catalyst layer on the inside surface of the casing (col. 6, lines 39-42).

It would have been obvious to one having ordinary skill in the art to coat the catalyst layer on the inside surface of the casing of Whittenberger et al so as to increase the exhaust gas cleaning effect as taught Arai et al.

Since Whittenberger et al discloses that the honeycomb structure and the casing are formed of stainless steel, apparently the structure and the casing will have a reduced linear expansion during warm up and use as that of the instant claims.

With respect to the specific wave type, Hitachi et al recognizes the conventionality of providing a honeycomb having wave plates and base plates, the waved plates may have trapezoidal shape, in which first sections that are substantially flat and each of the base plates having an inner surface and an outer surface being disposed against the first flat sections of adjoining ones of the waved plates located inwardly and outwardly thereof, respectively; the waved plates also having second sections extending outwardly from one of the base plates to the base plate immediately adjacent thereto; wherein the second sections of the waved plates are uninterrupted planar surfaces extending an axial direction from one end of the carrier to another, thus forming the air vent as uninterrupted passages from one end of the carrier to the other end (Fig. 3).

Similarly, Bullock et al discloses the conventionality of providing a honeycomb having wave plates and base plates, the waved plates may have trapezoidal shape with all of the details as set forth above.

It would have been obvious to one having ordinary skill in the art to select an appropriate wave type for the waved plates in the modified honeycomb of Whittenberger et al as taught by Hitachi et al or Bullock et al for the known and expected results of obtaining the same results in the absence of unexpected results and since such a modification would have involved a mere substitution of known equivalent structures as evidenced by Hitachi et al or Bullock et al. A substitution of known equivalent structures is generally recognized as being within the level of ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

7. Claims 1, 6-8, 13-15, 18-20, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma (5,323,608) in view of Kohno et al (5,653,825), Arai et al (5,151,254), either Bullock et al (4,810,588) or Hitachi et al (5,177,960) and either Toyoda et al (5,336,472) or Maus (4,713,361).

Honma discloses a catalytic converter comprising:

a stainless steel honeycomb structure 14 shaped in a cylindrical form, said honeycomb structure having a plurality of channels (i.e. air vents) extending in an axial direction thereof; and

a cylindrical case 12 covering an outer peripheral surface of the honeycomb structure wherein the case is composed of stainless steel (col. 2, line 58 to col. 3, line 30).

The apparatus of Honma is substantially the same as that of the instant claims, but fails to disclose whether the stainless steel case may be ferritic stainless steel case containing Mo.

The same comments with respect to Kohno et al, Arai et al, Bullock et al, Hitachi et al, Toyoda et al, and Maus apply.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 6-8, 13-15, 18-20, 23-24 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that the full support for the honeycomb structure having alternate waved plates and base plates with all of the details therein can be seen in Figs. 1-2. Such contention is not persuasive as set forth in the 112 rejection above, it is difficult from the drawings to determine if the plates form uninterrupted planar surfaces, or the air vents are substantially equal in size and the wave height of the wave plates are substantially constant. Note that in Fig. 1, the air vents and the wave height of the wave plates are getting smaller towards the casing 6.

Applicants argue that neither Kohno et al nor Arai et al teach about the size of the air vents or the flat sections of the wave plates or the constant wave height. Such contention is not persuasive as the references of Toyoda et al and Maus are relied upon for such teaching.

Applicants argue that Toyoda et al cannot be combined with Whittenberger et al, Kohno et al, Arai et al since Toyoda et al discloses two flat plates used in a pair between each corrugated plate. Such contention is not persuasive although Toyoda et al discloses two flat plates used in a pair between each corrugated plate, Toyoda et al also recognizes the use of a honeycomb structure having air vents of equal size is known in the art as shown in Fig. 1B.

Applicants argue that the outermost air vents of Maus are formed outside the case and thus cannot cooperate with an inner surface of the case as set forth in instant claims and the wave plates in Maus are not formed with flat sections and therefore cannot be combined with other prior art. Such contention is not persuasive as Maus discloses two honeycomb structures. The inner honeycomb structure, which is coated with catalyst layer, has the outermost air vents being

formed by cooperation of an entire surface of the case and a waved plate of the inner honeycomb carrier (col. 2, line 62 to col. 3, line 5). Whether the wave plates in Maus are not formed with flat sections is irrelevant as the other references, Hitachi et al and Bullock et al, are relied upon for such teaching.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Tran

**Hien Tran
Primary Examiner
Art Unit 1764**

HT
November 9, 2004